



CITY OF LODI

COUNCIL COMMUNICATION

AGENDA TITLE: Specifications and Advertisement for Bids for Turf Fertilizer for the Parks Department

MEETING DATE: January 18, 1995

PREPARED BY: Parks and Recreation Director

RECOMMENDED ACTION: That the City Council approve specifications and advertisement for bids for turf fertilizer for the Parks Department.

BACKGROUND INFORMATION: The Council voted 3-2 not to support/approve purchase of fertilizer at the Council meeting of January 4, 1995. The basis of the rejection of specifications was for two reasons: 1) could mulch from California Waste Removal Systems act as fertilizer? and 2) would money be saved by purchasing fertilizer in bulk?

I have asked Parks Supervisor Frank Pepper to respond to each of these questions (Exhibit A). Supervisor Pepper has experimented using various fertilizers and it is his recommendation that I request 50 pound bags of Turf Gold. This fertilizer is available through local suppliers and through various wholesalers. This means the fertilizer specified is not so specialized that we would be skewing our purchase towards any one supplier.

I totally agree with Mr. Pepper's recommendations and support our original request. I was not present when action was taken on this item at the last Council meeting, however, I appreciate having the opportunity to address each of these questions.

My recommendation is to purchase bagged fertilizer. However, I am asking that suppliers give us a per ton cost of bulk fertilizer. I also need to find out if suppliers can provide the storage bins to meet our scheduled times for applying fertilizer. On the surface, this seems a matter of scheduling our labor and the suppliers equipment. I am aware that farmers are able to make this work. Once I have the numbers to work with, I will make a decision and recommendation. So far, the suppliers we have contacted are not recommending bulk fertilizer because of the number of park sites involved. I have contacted five other cities and no one contacted is using bulk fertilizer. I have no problem in being the first if the cost savings are real (see attached report on bulk vs. bagged fertilizer Exhibit B).

Regarding using California Waste mulch as fertilizer, I have attached a cost comparison based on providing one pound of actual nitrogen per 1,000 square feet. This is the amount we have been able to use because we are using slow release fertilizer.

APPROVED: _____

THOMAS A. PETERSON
City Manager



recycled paper

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Based on this rate, we would be using two tons of mulch per acre. California Waste tells me farmers are using a rate of 10 tons per acre. If we were to apply mulch at this rate, the cost would be in excess of \$40,000. Our current budget is \$10,000. I do not recommend using mulch as fertilizer.

FUNDING: 1994/95 Parks Division Budget

A handwritten signature in black ink, appearing to read "Ron Williamson", written over a horizontal line.

Ron Williamson, Parks and Recreation Director

Prepared by Scott Essin, Parks Superintendent

RW:SE:sr

MEMORANDUM, City of Lodi, Parks and Recreation Department

To: Scott Essin, Parks Superintendent
From: Frank Pepper, Park Supervisor
Date: January 10, 1995
Subject: Fertilizer Report, Bulk, Bag or Mulch

This is the information that you requested at our Bi-weekly staff meeting we had on January 06, 1995 about the use of mulch as a fertilizer and bags verses bulk.

People accept the fact that they must mow and water to maintain the health of their lawn. But some may question the need for fertilizer. They shouldn't. Lawn grasses live in an unnatural environment. The grass plants are crowded together and compete with each other, along with neighboring trees and shrubs, for water and nutrients. They are mowed regularly, which is highly irregular in nature, and their clippings, a source of nutrients, are often removed. In our case the clippings are left to return to the soil.

Because of this competition and the unnatural demands placed on our lawns, they must be fertilized. Just as a balanced diet works best for people and animals, the same is true for lawns, they need fertilizer for sustenance. When PROPERLY fertilized, a lawn maintains good color, density, and vigor, and does not easily succumb to insects, weeds, or diseases. When underfertilized, the lawn is not only less attractive, but also considerably more susceptible to environmental stress and damage.

It has been brought to my attention that maybe we could use mulch as a fertilizer. First of all mulch is not a fertilizer. Mulch is mainly used for soil amendment and conservation of water when placed over the ground occupied by a plant's roots. It will keep the soil beneath cool and moist longer than soil that would be exposed to hot sun and drying wind.

Depending on what the mulch is made of (compost, sewage sludge, animal manures, ground bark, leaves, sawdust, straw, drape or apple pomace, cottonseed hulls and rice hulls), it should be checked to see what the carbon to nitrogen ratio is. If a mulch residue containing much more carbon than nitrogen is added to the soil, decay microorganisms will grow and proliferate by using the carbon compounds as an energy source. Since the residue is proportionally low in nitrogen, the microorganism will draw nitrogen out of the soil reservoir, which escapes into the atmosphere, depleting the supply available for the growth of the lawn. If any material with a ratio higher than about 10:1 is used as a soil amendment, nitrogen fertilizer should be added to the soil in compensation.

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If mulch was applied to a lawn as fertilizer, you would have to contend with how long will it take different kinds of mulch to decompose. Because of a low percentage of nitrogen, it is necessary to apply a much greater quantity at one time. There may also be an unpleasant smell and could be a health hazard. This can't be tilled into an established lawn. California Waste mulch product contains 1% nitrogen.

Some additional cautions about use of animal and human wastes are necessary. These materials can contain pathogenic bacteria, thus constituting a human health hazard. Another danger present with the use of sewage sludge is the accumulation of toxic heavy metals which can damage the soil irreparably.

Then there is the question of buying our fertilizer in bulk or bags. Bags are the easiest for us to handle and are also sealed from moisture. We can calculate the number of bags that it requires for each park, load them on a truck and do not have to make many trips back to the yard. With bag fertilizer one person can do this job. We also keep 1 or 2 tons on hand to redo the football field and infields on baseball fields through out the year. Being in sealed bags keeps the moisture out while being stored.

With bulk fertilizer we would have to place holding bins in strategic locations around the city or place them in our maintenance yard. If placed around the city this could cause a problem with vandalism or someone getting hurt. We can not always fertilize our park in a timely matter, we do them as time permits taking into consideration the watering and mowing schedule. Another problem would be moisture if it had to sit too long before it was applied. There could also be a problem with theft if left sitting out in parks. We would also need a scale to weigh what we need in each park. I do not see how we could accurately measure this without a scale of some type.

Nitrogen is frequently a limiting factor in the growth of turfgrasses, and its application will produce a dramatic improvement in the growth and appearance of the grass. Thus nitrogen level is the most important factor to keep in mind when developing a fertilizer program for turf; levels of the other fertilizer elements are usually not critical. Turf management for fertility becomes, in essence, nitrogen management. There are two general types of nitrogen fertilizers; soluble and slow release.

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Soluble, or "fast-release," formulations dissolve quickly in water and become available to roots immediately. Thus a greening effect can soon be noted in the turf. However, much of the applied soluble nitrogen is leached from the soil before it can be utilized by the turf. Thus much is wasted, and application is usually repeated several times per year. Great caution must be used in applying soluble fertilizers lest the turf area be "burned." This occurs when too much material is used; the salt concentration in the soil solution becomes so high that water is drawn out of the turf, leading to wilting and death of the tissue.

On the other hand slow-release materials provide a continuous supply of usable nitrogen to turf over a long period of time. This is due to the fact that such materials are slowly soluble or only gradually degraded by chemical and microbial action in the soil into forms of nitrogen usable by the turf. Slow-release fertilizers are manufactured by coating the materials with plastic or other membranes that impede the dissolving of the nitrogen in the soil solution. For example, SCU, or sulfur-coated urea, is made with coatings of differing thickness, which provide differing rates of release. When moistened, as in normal watering, some of the fertilizer diffuses through its coating into the surrounding soil, a little bit with each watering until the encapsulated fertilizer is used up. Some products are effective for 3 to 4 months, others for 8 or more months.

In the long run, and dollar for dollar, the best decision would be to use the slow-release fertilizer in bags. If the Best Turf Gold is too much for them to handle, maybe we could get a comparable mix. With the different fertilizers I have tried over the years the Best Turf Gold 21-3-5 has proven to last the longest for this price range. Since we only fertilize once a year I think this is the best way to go.

Fertilizer Bulk vs. Bag Price Savings Report

I contacted two local suppliers as follows:

San Joaquin Sulpher - Can provide bulk fertilizer with a 25 ton minimum order. Since our order is for 18 tons, we do not meet this minimum order. This means that if we go with bulk, San Joaquin Sulpher will not be able to bid. If we go with bagged fertilizer, they can bid.

Simplot - Can provide bins and will provide bulk bid for 18 tons of fertilizer, however, there would be no price savings due to the extra work they would have in delivering bins and picking them up. Simplot also can provide fertilizer spreaders designed to be used with their bins (see attached pictures).

We are ordering 18 tons of fertilizer. Both suppliers said a savings would occur at 25 tons. Bins hold 3½ tons and spreaders hold 1 ton of fertilizer. San Joaquin Sulpher can not provide containers. We would need our own. They would then offer a cost savings of \$35 a ton. We would then need to store the entire amount of bulk fertilizer.

Bottom line is we are not buying enough fertilizer to justify using bulk. Still, I am sure the Council will be most convinced by including an option for bulk fertilizer that requires bins be provided.

I have therefore added bulk fertilizer as an option to determine through the bid process if any savings emerge.

MULCH AS TURF FERTILIZER

- 1.
- 378
- TONS TURF FERTILIZER.

Cost per ton: -----	<u>\$28.00</u>	
x tons -----	<u>\$10,584.00</u>	(a)
+ Calif Sales Tax. -----	<u>\$793.80</u>	(b)
= TOTAL COST -----	<u>\$11,377.80</u>	(c)

2. ACRES OF COVERAGE PER TON (BASED ON AN APPLICATION RATE OF ONE POUND OF ACTUAL NITROGEN PER 1,000 SQ. FEET) -----
- 0.46
- ACRES

3. COST PER ACRE: Total Cost (line 1 - c) -----
- \$11,377.80

Divided by 378 tons
= total cost per ton ----- \$30.10

Divided by 0.46 acres per
ton (from line 2)

= COST PER ACRE: ----- \$65.43

Based on 1% Nitrogen

43,560 SQ. FEET PER ACRE. 2000 POUNDS PER TON.

X 100 POUNDS PER 1000 SQ. FEET.

= 4356.00 POUNDS PER ACRE.

0.46 ACRES OF COVERAGE PER TON.

Fertilizer Worksheet

To determine how much fertilizer to use and how often to use it, complete the following calculation: (1 ACRE = 43,560 SQ. FEET.)

- | | | |
|----|--|---------|
| 1. | Pounds of actual nitrogen to apply per growing months. Based on 1 pound per 1000 SQ. Feet. | 1 |
| 2. | Growing season in your area
(number of months) | 1 |
| 3. | Pounds of actual nitrogen to apply per year | 1 |
| 4. | Percentage of nitrogen in fertilizer | 0.01 |
| 5. | Pounds of fertilizer to apply per year
Based on number of growing months. | 100.00 |
| 6. | Pounds of fertilizer per feeding
per 1000 SQ. FEET. | 100.00 |
| 7. | Pounds per acre | 4356.00 |
| 8. | One ton (2000 Lbs.) will cover this many acres. | 0.46 |

One Ton (2000 Lbs.) at 21% Nitrogen will cover 9.6 Acres.

Total pounds used: 755,983.80 Lbs. 377.99 TONS

Acres can be fertilized: 173.55

Total acres that we fertilize: 173.55 ACRES

7,559,838 SQUARE FEET

SLOW-RELEASE TURF FERTILIZER

1. 18 TONS TURF FERTILIZER.

Cost per ton: -----	<u>\$496.00</u>	
x tons -----	<u>\$8,928.00</u>	(a)
+ Calif Sales Tax. -----	<u>\$669.60</u>	(b)
= TOTAL COST -----	<u>\$9,597.60</u>	(c)

2. ACRES OF COVERAGE PER TON (BASED ON AN APPLICATION RATE OF ONE POUND OF ACTUAL NITROGEN PER 1,000 SQ. FEET) ----- 9.65 ACRES

3. COST PER ACRE: Total Cost (line 1 - c) -----	<u>\$9,597.60</u>
Divided by 18 tons	
= total cost per ton -----	<u>\$533.20</u>
Divided by 9.65 acres per ton (from line 2)	
= COST PER ACRE: -----	<u>\$55.25</u>

Based on 21% Nitrogen

43,560	SQ. FEET PER ACRE.	2000	POUNDS PER TON.
X	<u>4.76</u>	POUNDS PER 1000 SQ. FEET.	
=	<u>207.35</u>	POUNDS PER ACRE.	
	<u>9.65</u>	ACRES OF COVERAGE PER TON.	

Fertilizer Worksheet

To determine how much fertilizer to use and how often to use it, complete the following calculation: (1 ACRE = 43,560 SQ. FEET.)

- | | | |
|----|--|--------|
| 1. | Pounds of actual nitrogen to apply per growing months. Based on 1 pound per 1000 SQ. Feet. | 1 |
| 2. | Growing season in your area
(number of months) | 1 |
| 3. | Pounds of actual nitrogen to apply per year | 1 |
| 4. | Percentage of nitrogen in fertilizer | 0.21 |
| 5. | Pounds of fertilizer to apply per year
Based on number of growing months. | 4.76 |
| 6. | Pounds of fertilizer per feeding
per 1000 SQ. FEET. | 4.76 |
| 7. | Pounds per acre | 207.43 |
| 8. | One ton (2000 Lbs.) will cover this many acres. | 9.64 |

One Ton (2000 Lbs.) at 21% Nitrogen will cover 9.6 Acres.

Turf Gold®

21-3-5

DESCRIPTION:

**A PREMIUM SLOW RELEASE FERTILIZER
THAT DOES NOT REQUIRE IMMEDIATE
IRRIGATION AFTER APPLICATION**

GUARANTEED MINIMUM ANALYSIS:

TOTAL NITROGEN (N)	21.0%
10.0% Ammoniacal Nitrogen	
1.0% Water Soluble Organic Nitrogen	
10.0% Coated Slow Release Urea Nitrogen	
AVAILABLE PHOSPHORIC ACID (P ₂ O ₅)	3.0%
SOLUBLE POTASH (K ₂ O)	5.0%
Sulfur (S)	15.0%
Iron (Fe)	0.9%

Plant nutrients derived from Ammonium Phosphate Sulfate, Sulfur Coated Urea, Muriate of Potash, and Iron Oxide.

BENEFITS: **BEST® TURF GOLD® 21-3-5:**

- Is a 2 particle mixture providing an effective ratio of Nitrogen, Phosphorus, Potassium, Sulfur and Iron.
- Is a mix of BEST TURF SUPREME® with BEST COTE® and premium grade Sulfur Coated Urea.
- BEST TURF SUPREME® with BEST COTE® allows the fertilizer to be applied and not watered for up to 48 hours without the danger of burn.
- Has 52% of its total Nitrogen derived from Sulfur Coated Urea to provide up to 12 weeks of Nitrogen release.
- Can be applied to schools, golf courses, homes (Professional lawn care) etc., without the inconvenience of turning on the irrigation system after application and interfering with the usage of the turfgrass area.

APPLICATION RATES:

TURFGRASS:	Lbs. of Actual Nitrogen desired per 1,000 sq. ft.	Lbs. of TURF GOLD® To Apply per 1,000 sq. ft.	Lbs. of TURF GOLD® To Apply per Acre
	.75	3.5	155
<i>*Recommended Rate</i>	1.00	4.8	210
	1.50*	7.1*	310*
	2.00	9.5	415

PREPLANT: Broadcast 7½ lbs. per 1,000 sq. ft. (325 lbs. per acre)

GROUND COVER: Broadcast at 5 lbs. per 1,000 sq. ft. (½ lb. per 100 sq. ft.)

SHRUBS & EVERGREENS: Sprinkle ¼ cup evenly around dripline of plant and work into top 1 inch of soil.

TREES: Apply ½ lb. per 1 inch of trunk diameter. Distribute evenly under branches out to dripline.

NOTE: Liquid measuring cups are very close in estimating the weight of dry granular fertilizers.

Example: An 8 oz. (1 cup) measuring cup holds approximately 8 oz. of dry granular fertilizer.

S P E C I F I C A T I O N S

B E S T T U R F G O L D

720 EACH 50-LB BAGS

PALLETIZED, 40 BAGS PER PALLET

PALLETIZED UNITS PLASTIC-WRAPPED
TO PREVENT MOISTURE ACCESS

DELIVERED TO PARKS DEPARTMENT
125 NORTH STOCKTON STREET
LODI CA 95240

ALTERNATE #1

BEST TURF GOLD

18 TONS BULK FERTILIZER

TO BE DELIVERED IN 3½ TON CONTAINERS
SPECIFY NECESSARY LEAD TIME FOR DELIVERY
NOT TO EXCEED 30 DAYS.

INDICATE AMOUNT OF TIME CONTAINER CAN BE USED BEFORE RETURNED.

BID SACK FERTILIZER AND PROVIDE ALTERNATE FOR USING BULK.

IF BULK FERTILIZER IS NOT AVAILABLE IN 18 TON AMOUNT INDICATE
THIS INFORMATION IN BID DOCUMENT